

10/538157

JC17 Rec'd PCT/PTO 08 JUN 2005

## SEQUENCE LISTING

<110> Tobias DASSLER

5 <120> METHOD FOR THE PRODUCTION OF R-ALPHA-LIPOIC ACID BY  
FERMENTATION

<130> Co 10227

10 <140>  
<141>

<160> 4

15 <170> PatentIn Ver. 2.0

<210> 1  
<211> 1017  
<212> DNA

20 <213> Escherichia coli

<220>  
<221> CDS  
<222> (1)..(1014)

25 <300>  
<301> Morris, Timothy W.  
Reed, Kelynn E.  
Cronan Jr., John E.

30 <302> Identification of the Gene Encoding Lipoate-Protein  
Ligase A of Escherichia coli  
<303> J. Biol. Chem.  
<304> 269  
<305> 23

35 <306> 16091-16100  
<307> 1994

<400> 1

40	atg tcc aca tta cgc ctg ctc atc tct gac tct tac gac ccg tgg ttt	48
	Met Ser Thr Leu Arg Leu Ile Ser Asp Ser Tyr Asp Pro Trp Phe	
	1 5 10 15	
45	aac ctg gcg gtg gaa gag tgt att ttt cgc caa atg ccc gcc acg cag	96
	Asn Leu Ala Val Glu Glu Cys Ile Phe Arg Gln Met Pro Ala Thr Gln	
	20 25 30	
50	cgc gtt ctg ttt ctc tgg cgc aat gcc gac acg gta gta att ggt cgc	144
	Arg Val Leu Phe Leu Trp Arg Asn Ala Asp Thr Val Val Ile Gly Arg	
	35 40 45	
	gcg cag aac ccg tgg aaa gag tgt aat acc cgg cgg atg gaa gaa gat	192
	Ala Gln Asn Pro Trp Lys Glu Cys Asn Thr Arg Arg Met Glu Glu Asp	
	50 55 60	

	aac gtc cgc ctg gcg cgg cgc agt agc ggt ggc ggc gcg gtg ttc cac	240
	Asn Val Arg Leu Ala Arg Arg Ser Ser Gly Gly Gly Ala Val Phe His	
	65 70 75 80	
5	gat ctc ggc aat acc tgc ttt acc ttt atg gct ggc aag ccg gag tac	288
	Asp Leu Gly Asn Thr Cys Phe Thr Phe Met Ala Gly Lys Pro Glu Tyr	
	85 90 95	
10	gat aaa act atc tcc acg tcg att gtg ctc aat gcg ctg aac gcg ctc	336
	Asp Lys Thr Ile Ser Thr Ser Ile Val Leu Asn Ala Leu Asn Ala Leu	
	100 105 110	
15	ggc gtc agc gcc gaa gcg tcc gga cgt aac gat ctg gtg gtg aaa acc	384
	Gly Val Ser Ala Glu Ala Ser Gly Arg Asn Asp Leu Val Val Lys Thr	
	115 120 125	
20	gtc gaa ggc gac cgc aaa gtc tca ggc tcg gcc tat cgc gaa acc aaa	432
	Val Glu Gly Asp Arg Lys Val Ser Gly Ser Ala Tyr Arg Glu Thr Lys	
	130 135 140	
25	gat cgc ggc ttc cac cac ggc acc ttg cta ctc aat gcc gac ctc agc	480
	Asp Arg Gly Phe His His Gly Thr Leu Leu Leu Asn Ala Asp Leu Ser	
	145 150 155 160	
30	cgc ctg gca aac tat ctc aat ccg gat aaa aag aaa ctg gcg gcg aaa	528
	Arg Leu Ala Asn Tyr Leu Asn Pro Asp Lys Lys Lys Leu Ala Ala Lys	
	165 170 175	
35	ggc att acg tcg gta cgt tcc cgc gtg acc aac ctc acc gag ctg ttg	576
	Gly Ile Thr Ser Val Arg Ser Arg Val Thr Asn Leu Thr Glu Leu Leu	
	180 185 190	
40	ccg ggg atc acc cat gag cag gtt tgc gag gcc ata acc gag gcc ttt	624
	Pro Gly Ile Thr His Glu Gln Val Cys Glu Ala Ile Thr Glu Ala Phe	
	195 200 205	
45	ttc gcc cat tat ggc gag cgc gtg gaa gcg gaa atc atc tcc ccg aac	672
	Phe Ala His Tyr Gly Glu Arg Val Glu Ala Glu Ile Ile Ser Pro Asn	
	210 215 220	
50	aaa acg cca gac ttg cca aac ttc gcc gaa acc ttt gcc cgc cag agt	720
	Lys Thr Pro Asp Leu Pro Asn Phe Ala Glu Thr Phe Ala Arg Gln Ser	
	225 230 235 240	
55	agc tgg gaa tgg aac ttc ggt cag gct ccg gca ttc tcg cat ctg ctg	768
	Ser Trp Glu Trp Asn Phe Gly Gln Ala Pro Ala Phe Ser His Leu Leu	
	245 250 255	
60	gat gaa cgc ttt acc tgg ggc ggc gtg gaa ctg cat ttc gac gtt gaa	816
	Asp Glu Arg Phe Thr Trp Gly Gly Val Glu Leu His Phe Asp Val Glu	
	260 265 270	
65	aaa ggc cat atc acc cgc gcc cag gtg ttt acc gac agc ctc aac ccc	864
	Lys Gly His Ile Thr Arg Ala Gln Val Phe Thr Asp Ser Leu Asn Pro	
	275 280 285	

gcg ccg ctg gaa gcc ctc gcc gga cga ctg caa ggc tgc ctg tac cgc 912  
 Ala Pro Leu Glu Ala Leu Ala Gly Arg Leu Gln Gly Cys Leu Tyr Arg  
 290 295 300

5 gca gat atg ctg caa cag gag tgc gaa gcg ctg ttg gtt gac ttc ccg 960  
 Ala Asp Met Leu Gln Gln Glu Cys Glu Ala Leu Leu Val Asp Phe Pro  
 305 310 315 320

10 gaa cag gaa aaa gag cta cgg gag tta tcg gca tgg atg gcg ggg gct  
 1008  
 Glu Gln Glu Lys Glu Leu Arg Glu Leu Ser Ala Trp Met Ala Gly Ala  
 325 330 335

15 gta agg tag  
 1017  
 Val Arg

20 <210> 2  
 <211> 338  
 <212> PRT  
 <213> Escherichia coli

25 <400> 2  
 Met Ser Thr Leu Arg Leu Leu Ile Ser Asp Ser Tyr Asp Pro Trp Phe  
 1 5 10 15

30 Asn Leu Ala Val Glu Glu Cys Ile Phe Arg Gln Met Pro Ala Thr Gln  
 20 25 30

Arg Val Leu Phe Leu Trp Arg Asn Ala Asp Thr Val Val Ile Gly Arg  
 35 40 45

35 Ala Gln Asn Pro Trp Lys Glu Cys Asn Thr Arg Arg Met Glu Glu Asp  
 50 55 60

Asn Val Arg Leu Ala Arg Arg Ser Ser Gly Gly Gly Ala Val Phe His  
 65 70 75 80

40 Asp Leu Gly Asn Thr Cys Phe Thr Phe Met Ala Gly Lys Pro Glu Tyr  
 85 90 95

45 Asp Lys Thr Ile Ser Thr Ser Ile Val Leu Asn Ala Leu Asn Ala Leu  
 100 105 110

Gly Val Ser Ala Glu Ala Ser Gly Arg Asn Asp Leu Val Val Lys Thr  
 115 120 125

50 Val Glu Gly Asp Arg Lys Val Ser Gly Ser Ala Tyr Arg Glu Thr Lys  
 130 135 140

Asp Arg Gly Phe His His Gly Thr Leu Leu Leu Asn Ala Asp Leu Ser  
 145 150 155 160

55

Arg Leu Ala Asn Tyr Leu Asn Pro Asp Lys Lys Lys Leu Ala Ala Lys  
 165 170 175  
 5 Gly Ile Thr Ser Val Arg Ser Arg Val Thr Asn Leu Thr Glu Leu Leu  
 180 185 190  
 Pro Gly Ile Thr His Glu Gln Val Cys Glu Ala Ile Thr Glu Ala Phe  
 195 200 205  
 10 Phe Ala His Tyr Gly Glu Arg Val Glu Ala Glu Ile Ile Ser Pro Asn  
 210 215 220  
 Lys Thr Pro Asp Leu Pro Asn Phe Ala Glu Thr Phe Ala Arg Gln Ser  
 225 230 235 240  
 15 Ser Trp Glu Trp Asn Phe Gly Gln Ala Pro Ala Phe Ser His Leu Leu  
 245 250 255  
 20 Asp Glu Arg Phe Thr Trp Gly Gly Val Glu Leu His Phe Asp Val Glu  
 260 265 270  
 Lys Gly His Ile Thr Arg Ala Gln Val Phe Thr Asp Ser Leu Asn Pro  
 275 280 285  
 25 Ala Pro Leu Glu Ala Leu Ala Gly Arg Leu Gln Gly Cys Leu Tyr Arg  
 290 295 300  
 30 Ala Asp Met Leu Gln Gln Glu Cys Glu Ala Leu Leu Val Asp Phe Pro  
 305 310 315 320  
 Glu Gln Glu Lys Glu Leu Arg Glu Leu Ser Ala Trp Met Ala Gly Ala  
 325 330 335  
 35 Val Arg  
 <210> 3  
 <211> 30  
 40 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Description of Artificial Sequence: Oligonucleotide  
 45 lplA-fwd  
 <400> 3  
 cgggatccct atctgcgccct gacactcgac 30  
 50 <210> 4  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence  
 55

&lt;220&gt;

<223> Description of Artificial Sequence: Oligonucleotide  
lplA-rev

5 <400> 4  
cgggatacctt tatctgaacc gccatttgcg ctg

33